

SEQUENCE LISTING

<110> ISTITUTO SUPERIORE DI SANITA

<120> NANO PARTICLES FOR DELIVERY OF A PHARMACOLOGICALLY ACTIVE AGENT

<130> N.89061A JHS

<160> 40

<170> PatentIn version 3.2

<210> 1

<211> 309

<212> DNA

<213> Human immunodeficiency virus

<220>

<221> CDS

<222> (1)..(309)

<400> 1

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Met	Glu	Pro	Val	Asp	Pro	Arg	Leu	Glu	Pro	Trp	Lys	His	Pro	Gly	Ser	
1				5					10					15		

cag	cct	aaa	act	gct	tgt	acc	aat	tgc	tat	tgt	aaa	aag	tgt	tgc	ttt	96
Gln	Pro	Lys	Thr	Ala	Cys	Thr	Asn	Cys	Tyr	Cys	Lys	Lys	Cys	Cys	Phe	
			20					25					30			

cat	tgc	caa	gtt	tgt	ttc	ata	aca	aaa	gcc	tta	ggc	atc	tcc	tac	ggc	144
His	Cys	Gln	Val	Cys	Phe	Ile	Thr	Lys	Ala	Leu	Gly	Ile	Ser	Tyr	Gly	
		35					40					45				

agg	aag	aag	cgg	aga	cag	cgt	cga	aga	cct	cct	caa	ggc	agt	cag	act	192
Arg	Lys	Lys	Arg	Arg	Gln	Arg	Arg	Arg	Pro	Pro	Gln	Gly	Ser	Gln	Thr	
	50					55					60					

cat	caa	gtt	tct	cta	tca	aag	caa	ccc	acc	tcc	caa	tcc	cga	ggg	gac	240
His	Gln	Val	Ser	Leu	Ser	Lys	Gln	Pro	Thr	Ser	Gln	Ser	Arg	Gly	Asp	
65					70				75					80		

ccg	aca	ggc	ccg	aag	gaa	cag	aag	aag	aag	gtg	gag	aga	gag	aca	gag	288
Pro	Thr	Gly	Pro	Lys	Glu	Gln	Lys	Lys	Lys	Val	Glu	Arg	Glu	Thr	Glu	
				85					90					95		

aca	gat	ccg	gtc	cat	cag	tga										309
Thr	Asp	Pro	Val	His	Gln											
			100													

<210> 2

<211> 102

<212> PRT

<213> Human immunodeficiency virus

<400> 2

Met	Glu	Pro	Val	Asp	Pro	Arg	Leu	Glu	Pro	Trp	Lys	His	Pro	Gly	Ser
1				5					10					15	

Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe
20 25 30

His Cys Gln Val Cys Phe Ile Thr Lys Ala Leu Gly Ile Ser Tyr Gly
35 40 45

Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser Gln Thr
50 55 60

His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Arg Gly Asp
65 70 75 80

Pro Thr Gly Pro Lys Glu Gln Lys Lys Lys Val Glu Arg Glu Thr Glu
85 90 95

Thr Asp Pro Val His Gln
100

<210> 3
<211> 261
<212> DNA
<213> Human immunodeficiency virus

<220>
<221> CDS
<222> (1)..(261)

<400> 3
atg gag cca gta gat cct cgt cta gag ccc tgg aag cat cca gga agt 48
Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser
1 5 10 15
cag cct aaa act gct tgt acc aat tgc tat tgt aaa aag tgt tgc ttt 96
Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe
20 25 30
cat tgc caa gtt tgt ttc ata aca aaa gcc tta ggc atc tcc tac ggc 144
His Cys Gln Val Cys Phe Ile Thr Lys Ala Leu Gly Ile Ser Tyr Gly
35 40 45
agg aag aag cgg aga cag cgt cga aga cct cct caa ggc agt cag act 192
Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser Gln Thr
50 55 60
cat caa gtt tct cta tca aag caa ccc acc tcc caa tcc cga ggg gac 240
His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Arg Gly Asp
65 70 75 80
ccg aca ggc ccg aag gaa tag 261
Pro Thr Gly Pro Lys Glu
85

<210> 4
 <211> 86
 <212> PRT
 <213> Human immunodeficiency virus

<400> 4

Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser
 1 5 10 15

Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe
 20 25 30

His Cys Gln Val Cys Phe Ile Thr Lys Ala Leu Gly Ile Ser Tyr Gly
 35 40 45

Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser Gln Thr
 50 55 60

His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Arg Gly Asp
 65 70 75 80

Pro Thr Gly Pro Lys Glu
 85

<210> 5
 <211> 261
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 <213> Human immunodeficiency virus

<220>
 <221> CDS
 <222> (1)..(261)

<400> 5

atg gag cca gta gat cct aga cta gag ccc tgg aag cat cca gga agt 48
 Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser
 1 5 10 15

cag cct aaa act gct ggt acc aat tgc tat tgt aaa aag tgt tgc ttt 96
 Gln Pro Lys Thr Ala Gly Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe
 20 25 30

cat tgc caa gtt tgt ttc ata aca aaa gcc tta ggc atc tcc tat ggc 144
 His Cys Gln Val Cys Phe Ile Thr Lys Ala Leu Gly Ile Ser Tyr Gly
 35 40 45

agg aag aag cgg aga cag cga cga aga cct cct caa ggc agt cag act 192
 Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser Gln Thr
 50 55 60

cat caa gtt tct cta tca aag cag ccc acc tcc caa tcc cga ggg gac 240
 His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Arg Gly Asp

4/21

65				70			75			80	
ccg	aca	ggc	ccg	aag	gaa	tag					261
Pro	Thr	Gly	Pro	Lys	Glu						
				85							

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<210> 6
<211> 86
<212> PRT
<213> Human immunodeficiency virus
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<400> 6

Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser
1 5 10 15

Gln Pro Lys Thr Ala Gly Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe
20 25 30

His Cys Gln Val Cys Phe Ile Thr Lys Ala Leu Gly Ile Ser Tyr Gly
35 40 45

Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser Gln Thr
50 55 60

His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Arg Gly Asp
65 70 75 80

Pro Thr Gly Pro Lys Glu
85

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<210> 7
<211> 261
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<213> Human immunodeficiency virus
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<220>
<221> CDS
<222> (1)..(261)
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<400> 7
atg gag cca gta gat cct aga cta gag ccc tgg aag cat cca gga agt 48
Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser
1 5 10 15

cag cct aaa act gct tgt acc aat tgc tat tgt aaa aag tgt tgc ttt 96
Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe
20 25 30

cat tgc caa gtt tgt ttc ata aca gct gcc tta ggc atc tcc tat ggc 144
His Cys Gln Val Cys Phe Ile Thr Ala Ala Leu Gly Ile Ser Tyr Gly
35 40 45

5/21

agg aag aag cgg aga cag cga cga aga cct cct caa ggc agt cag act 192
 Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser Gln Thr
 50 55 60

cat caa gtt tct cta tca aag cag ccc acc tcc caa tcc cga ggg gac 240
 His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Arg Gly Asp
 65 70 75 80

ccg aca ggc ccg aag gaa tag 261
 Pro Thr Gly Pro Lys Glu
 85

<210> 8
 <211> 86
 <212> PRT
 <213> Human immunodeficiency virus

<400> 8

Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser
 1 5 10 15

Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe
 20 25 30

His Cys Gln Val Cys Phe Ile Thr Ala Ala Leu Gly Ile Ser Tyr Gly
 35 40 45

Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser Gln Thr
 50 55 60

His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Arg Gly Asp
 65 70 75 80

Pro Thr Gly Pro Lys Glu
 85

<210> 9
 <211> 252
 <212> DNA
 <213> Human immunodeficiency virus

<220>
 <221> CDS
 <222> (1)..(252)

<400> 9

atg gag cca gta gat cct aga cta gag ccc tgg aag cat cca gga agt 48
 Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser
 1 5 10 15

cag cct aaa act gct tgt acc aat tgc tat tgt aaa aag tgt tgc ttt 96
 Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe

6/21

	20	25	30	
cat tgc caa gtt tgt ttc ata aca aaa gcc tta ggc atc tcc tat ggc				144
His Cys Gln Val Cys Phe Ile Thr Lys Ala Leu Gly Ile Ser Tyr Gly				
	35	40	45	
agg aag aag cgg aga cag cga cga aga cct cct caa ggc agt cag act				192
Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser Gln Thr				
	50	55	60	
cat caa gtt tct cta tca aag cag ccc acc tcc caa tcc ccg aca ggc				240
His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Pro Thr Gly				
	65	70	75	80
ccg aag gaa tag				252
Pro Lys Glu				

<210> 10

<211> 83

<212> PRT

<213> Human immunodeficiency virus

<400> 10

Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser
1 5 10 15

Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe
20 25 30

His Cys Gln Val Cys Phe Ile Thr Lys Ala Leu Gly Ile Ser Tyr Gly
35 40 45

Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser Gln Thr
50 55 60

His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Pro Thr Gly
65 70 75 80

Pro Lys Glu

<210> 11

<211> 252

<212> DNA

<213> Human immunodeficiency virus

<220>

<221> CDS

<222> (1) .. (252)

<400> 11

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 Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser
 1 5 10 15

 cag cct aaa act gct tgt acc aat tgc tat tgt aaa aag tgt tgc ttt 96
 Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe
 20 25 30

 cat tgc caa gtt tgt ttc ata aca gct gcc tta ggc atc tcc tat ggc 144
 His Cys Gln Val Cys Phe Ile Thr Ala Ala Leu Gly Ile Ser Tyr Gly
 35 40 45

 agg aag aag cgg aga cag cga cga aga cct cct caa ggc agt cag act 192
 Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser Gln Thr
 50 55 60

 cat caa gtt tct cta tca aag cag ccc acc tcc caa tcc ccg aca ggc 240
 His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Pro Thr Gly
 65 70 75 80

 ccg aag gaa tag 252
 Pro Lys Glu

<210> 12
 <211> 83
 <212> PRT
 <213> Human immunodeficiency virus

<400> 12

Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser
 1 5 10 15

 Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe
 20 25 30

 His Cys Gln Val Cys Phe Ile Thr Ala Ala Leu Gly Ile Ser Tyr Gly
 35 40 45

 Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser Gln Thr
 50 55 60

 His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Pro Thr Gly
 65 70 75 80

 Pro Lys Glu

<210> 13
 <211> 306
 <212> DNA
 <213> Human immunodeficiency virus

<220>

<221> CDS

<222> (1) .. (306)

<400> 13

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atg gat cca gta gat cct aac cta gag ccc tgg aac cat ccg gga agt      48
Met Asp Pro Val Asp Pro Asn Leu Glu Pro Trp Asn His Pro Gly Ser
1          5          10          15

cag cct aca act gct tgt aac aag tgt tac tgt aaa aag tgt tgc tat      96
Gln Pro Thr Thr Ala Cys Asn Lys Cys Tyr Cys Lys Lys Cys Cys Tyr
          20          25          30

cat tgc caa gtt tgc ttt ctg aac aaa ggc tta ggc atc tcc tat ggc      144
His Cys Gln Val Cys Phe Leu Asn Lys Gly Leu Gly Ile Ser Tyr Gly
          35          40          45

agg aag aag cgg aga cag cga cga gga act cct cag agc agt aag gat      192
Arg Lys Lys Arg Arg Gln Arg Arg Gly Thr Pro Gln Ser Ser Lys Asp
          50          55          60

cat caa aat cct ata cca aag caa ccc ata ccc caa acc caa ggg gtc      240
His Gln Asn Pro Ile Pro Lys Gln Pro Ile Pro Gln Thr Gln Gly Val
65          70          75          80

tcg aca ggc ccg gaa gaa tcg aag aag aag gtg gag agc aag gca gag      288
Ser Thr Gly Pro Glu Glu Ser Lys Lys Lys Val Glu Ser Lys Ala Glu
          85          90          95

aca gat cga ttc gat tag      306
Thr Asp Arg Phe Asp
          100

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<210> 14

<211> 101

<212> PRT

<213> Human immunodeficiency virus

<400> 14

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Met Asp Pro Val Asp Pro Asn Leu Glu Pro Trp Asn His Pro Gly Ser
1          5          10          15

Gln Pro Thr Thr Ala Cys Asn Lys Cys Tyr Cys Lys Lys Cys Cys Tyr
          20          25          30

His Cys Gln Val Cys Phe Leu Asn Lys Gly Leu Gly Ile Ser Tyr Gly
          35          40          45

Arg Lys Lys Arg Arg Gln Arg Arg Gly Thr Pro Gln Ser Ser Lys Asp
          50          55          60

His Gln Asn Pro Ile Pro Lys Gln Pro Ile Pro Gln Thr Gln Gly Val
65          70          75          80

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Ser Thr Gly Pro Glu Glu Ser Lys Lys Lys Val Glu Ser Lys Ala Glu
85 90 95

Thr Asp Arg Phe Asp
100

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<210> 15
<211> 306
<212> DNA
<213> Human immunodeficiency virus
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<220>
<221> CDS
<222> (1) .. (306)
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<400>	15															
atg gag cca gta gat cct aga cta gag ccc tgg aag cat cca gga agt																48
Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser																
1	5 10 15															
cag cct aag act gct tgt acc aat tgc tat tgt aaa aag tgt tgc ttt																96
Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe																
	20 25 30															
cat tgc caa gtt tgt ttc ata aca aaa ggc tta ggc atc tcc tat ggc																144
His Cys Gln Val Cys Phe Ile Thr Lys Gly Leu Gly Ile Ser Tyr Gly																
	35 40 45															
agg aag aag cgg aga cag cga cga aga gct cct caa gac agt cag act																192
Arg Lys Lys Arg Arg Gln Arg Arg Arg Ala Pro Gln Asp Ser Gln Thr																
	50 55 60															
cat caa gtt tct cta tca aag caa ccc gcc tcc cag ccc cga ggg gac																240
His Gln Val Ser Leu Ser Lys Gln Pro Ala Ser Gln Pro Arg Gly Asp																
65	70 75 80															
ccg aca ggc ccg aag gaa tcg aag aag aag gtg gag aga gag aca gag																288
Pro Thr Gly Pro Lys Glu Ser Lys Lys Lys Val Glu Arg Glu Thr Glu																
	85 90 95															
aca gat ccg gtc gat tag																306
Thr Asp Pro Val Asp																
	100															

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<210> 16
<211> 101
<212> PRT
<213> Human immunodeficiency virus
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<400> 16

Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser
1 5 10 15

Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe

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	20		25		30
His Cys Gln Val Cys Phe Ile Thr Lys Gly Leu Gly Ile Ser Tyr Gly					
	35		40		45
Arg Lys Lys Arg Arg Gln Arg Arg Arg Ala Pro Gln Asp Ser Gln Thr					
	50		55		60
His Gln Val Ser Leu Ser Lys Gln Pro Ala Ser Gln Pro Arg Gly Asp					
	65		70		75
Pro Thr Gly Pro Lys Glu Ser Lys Lys Lys Val Glu Arg Glu Thr Glu					
		85		90	95
Thr Asp Pro Val Asp					
	100				

<210> 17
 <211> 306
 <212> DNA
 <213> Human immunodeficiency virus

<220>
 <221> CDS
 <222> (1)..(306)

<400> 17	
atg gag cca gta gat cct aac cta gag ccc tgg aac cat cca gga agt	48
Met Glu Pro Val Asp Pro Asn Leu Glu Pro Trp Asn His Pro Gly Ser	
1 5 10 15	
cag cct aaa act gct tgt aat aag tgt tat tgt aaa cac tgt agc tat	96
Gln Pro Lys Thr Ala Cys Asn Lys Cys Tyr Cys Lys His Cys Ser Tyr	
20 25 30	
cat tgt cta gtt tgc ttt cag aca aaa ggc tta ggc att tcc tat ggc	144
His Cys Leu Val Cys Phe Gln Thr Lys Gly Leu Gly Ile Ser Tyr Gly	
35 40 45	
agg aag aag cgg aga cag cga cga agc gct cct cca agc agt gag gat	192
Arg Lys Lys Arg Arg Gln Arg Arg Ser Ala Pro Pro Ser Ser Glu Asp	
50 55 60	
cat caa aat ctt ata tca aag caa ccc tta ccc caa acc caa ggg gac	240
His Gln Asn Leu Ile Ser Lys Gln Pro Leu Pro Gln Thr Gln Gly Asp	
65 70 75 80	
ccg aca ggc tcg gaa gaa tcg aag aag aag gtg gag agc aag aca gag	288
Pro Thr Gly Ser Glu Glu Ser Lys Lys Lys Val Glu Ser Lys Thr Glu	
85 90 95	
aca gat cca ttc gat tag	306
Thr Asp Pro Phe Asp	
100	

11/21

<210> 18
 <211> 101
 <212> PRT
 <213> Human immunodeficiency virus

<400> 18

Met Glu Pro Val Asp Pro Asn Leu Glu Pro Trp Asn His Pro Gly Ser
 1 5 10 15

Gln Pro Lys Thr Ala Cys Asn Lys Cys Tyr Cys Lys His Cys Ser Tyr
 20 25 30

His Cys Leu Val Cys Phe Gln Thr Lys Gly Leu Gly Ile Ser Tyr Gly
 35 40 45

Arg Lys Lys Arg Arg Gln Arg Arg Ser Ala Pro Pro Ser Ser Glu Asp
 50 55 60

His Gln Asn Leu Ile Ser Lys Gln Pro Leu Pro Gln Thr Gln Gly Asp
 65 70 75 80

Pro Thr Gly Ser Glu Glu Ser Lys Lys Lys Val Glu Ser Lys Thr Glu
 85 90 95

Thr Asp Pro Phe Asp
 100

<210> 19
 <211> 261
 <212> DNA
 <213> Human immunodeficiency virus

<220>
 <221> CDS
 <222> (1)..(261)

<400> 19

atg gat cca gta gat cct aac cta gag ccc tgg aac cat cca gga agt 48
 Met Asp Pro Val Asp Pro Asn Leu Glu Pro Trp Asn His Pro Gly Ser
 1 5 10 15

cag cct agg act cct tgt aac aag tgt tat tgt aaa aag tgt tgc tat 96
 Gln Pro Arg Thr Pro Cys Asn Lys Cys Tyr Cys Lys Lys Cys Cys Tyr
 20 25 30

cat tgc caa gtt tgc ttc ata acg aaa ggc tta ggc atc tcc tat ggc 144
 His Cys Gln Val Cys Phe Ile Thr Lys Gly Leu Gly Ile Ser Tyr Gly
 35 40 45

agg aag aag cgg aga cag cga cga aga cct cct caa ggc ggt cag gct 192

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Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Gly Gln Ala
 50 55 60

cat caa gat cct ata cca aag caa ccc tcc tcc cag ccc cga ggg gac 240
 His Gln Asp Pro Ile Pro Lys Gln Pro Ser Ser Gln Pro Arg Gly Asp
 65 70 75 80

ccg aca ggc ccg aag gaa tag 261
 Pro Thr Gly Pro Lys Glu
 85

<210> 20
 <211> 86
 <212> PRT
 <213> Human immunodeficiency virus

<400> 20

Met Asp Pro Val Asp Pro Asn Leu Glu Pro Trp Asn His Pro Gly Ser
 1 5 10 15

Gln Pro Arg Thr Pro Cys Asn Lys Cys Tyr Cys Lys Lys Cys Cys Tyr
 20 25 30

His Cys Gln Val Cys Phe Ile Thr Lys Gly Leu Gly Ile Ser Tyr Gly
 35 40 45

Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Gly Gln Ala
 50 55 60

His Gln Asp Pro Ile Pro Lys Gln Pro Ser Ser Gln Pro Arg Gly Asp
 65 70 75 80

Pro Thr Gly Pro Lys Glu
 85

<210> 21
 <211> 306
 <212> DNA
 <213> Human immunodeficiency virus

<220>
 <221> CDS
 <222> (1)..(306)

<400> 21

atg gaa cta gta gat cct aac tta gat ccc tgg aac cat cca gga agc 48
 Met Glu Leu Val Asp Pro Asn Leu Asp Pro Trp Asn His Pro Gly Ser
 1 5 10 15

cag cct aca act cct tgt acc aaa tgc tat tgt aaa agg tgt tgc ttt 96
 Gln Pro Thr Thr Pro Cys Thr Lys Cys Tyr Cys Lys Arg Cys Cys Phe
 20 25 30

cat tgc caa tgg tgc ttt aca acg aag ggc tta ggc atc tcc tat ggc 144
 His Cys Gln Trp Cys Phe Thr Thr Lys Gly Leu Gly Ile Ser Tyr Gly
 35 40 45

agg aag aag cgg aga cag cga cga aga act cct caa agc agt cag ata 192
 Arg Lys Lys Arg Arg Gln Arg Arg Arg Thr Pro Gln Ser Ser Gln Ile
 50 55 60

cat caa gat cct gta cca aag caa ccc tta tcc caa gcc cga ggg aac 240
 His Gln Asp Pro Val Pro Lys Gln Pro Leu Ser Gln Ala Arg Gly Asn
 65 70 75 80

ccg aca ggc ccg aag gaa tcg aag aag gag gtg gag agc aag gca aag 288
 Pro Thr Gly Pro Lys Glu Ser Lys Lys Glu Val Glu Ser Lys Ala Lys
 85 90 95

aca gat ccg tgc gat tag 306
 Thr Asp Pro Cys Asp
 100

<210> 22
 <211> 101
 <212> PRT
 <213> Human immunodeficiency virus

<400> 22

Met Glu Leu Val Asp Pro Asn Leu Asp Pro Trp Asn His Pro Gly Ser
 1 5 10 15

Gln Pro Thr Thr Pro Cys Thr Lys Cys Tyr Cys Lys Arg Cys Cys Phe
 20 25 30

His Cys Gln Trp Cys Phe Thr Thr Lys Gly Leu Gly Ile Ser Tyr Gly
 35 40 45

Arg Lys Lys Arg Arg Gln Arg Arg Arg Thr Pro Gln Ser Ser Gln Ile
 50 55 60

His Gln Asp Pro Val Pro Lys Gln Pro Leu Ser Gln Ala Arg Gly Asn
 65 70 75 80

Pro Thr Gly Pro Lys Glu Ser Lys Lys Glu Val Glu Ser Lys Ala Lys
 85 90 95

Thr Asp Pro Cys Asp
 100

<210> 23
 <211> 306
 <212> DNA
 <213> Human immunodeficiency virus

<220>

<221> CDS

<222> (1)..(306)

<400> 23

atg	gac	ccg	gta	gat	cct	aac	cta	gag	ccc	tgg	aat	cat	ccg	ggg	agt	48
Met	Asp	Pro	Val	Asp	Pro	Asn	Leu	Glu	Pro	Trp	Asn	His	Pro	Gly	Ser	
1				5					10					15		

cag	cct	aaa	act	ccc	tgt	aac	aaa	tgt	tat	tgt	aaa	atg	tgt	tgc	tgg	96
Gln	Pro	Lys	Thr	Pro	Cys	Asn	Lys	Cys	Tyr	Cys	Lys	Met	Cys	Cys	Trp	
			20					25					30			

cat	tgt	caa	gtt	tgc	ttt	ctg	aac	aaa	ggc	tta	ggc	atc	tcc	tat	ggc	144
His	Cys	Gln	Val	Cys	Phe	Leu	Asn	Lys	Gly	Leu	Gly	Ile	Ser	Tyr	Gly	
		35					40					45				

agg	aag	aag	cgg	aag	cac	cga	cga	gga	act	cct	cag	agc	agt	aag	gat	192
Arg	Lys	Lys	Arg	Lys	His	Arg	Arg	Gly	Thr	Pro	Gln	Ser	Ser	Lys	Asp	
	50					55					60					

cat	caa	aat	cct	gta	cca	aag	caa	ccc	tta	ccc	acc	acc	aga	ggg	aac	240
His	Gln	Asn	Pro	Val	Pro	Lys	Gln	Pro	Leu	Pro	Thr	Thr	Arg	Gly	Asn	
65					70				75						80	

ccg	aca	ggc	ccg	aag	gaa	tcg	aag	aag	gag	gtg	gag	agc	aag	aca	gag	288
Pro	Thr	Gly	Pro	Lys	Glu	Ser	Lys	Lys	Glu	Val	Glu	Ser	Lys	Thr	Glu	
				85					90					95		

aca	gat	cca	ttc	gat	tag											306
Thr	Asp	Pro	Phe	Asp												
			100													

<210> 24

<211> 101

<212> PRT

<213> Human immunodeficiency virus

<400> 24

Met	Asp	Pro	Val	Asp	Pro	Asn	Leu	Glu	Pro	Trp	Asn	His	Pro	Gly	Ser
1				5					10					15	

Gln	Pro	Lys	Thr	Pro	Cys	Asn	Lys	Cys	Tyr	Cys	Lys	Met	Cys	Cys	Trp
			20					25					30		

His	Cys	Gln	Val	Cys	Phe	Leu	Asn	Lys	Gly	Leu	Gly	Ile	Ser	Tyr	Gly
		35					40					45			

Arg	Lys	Lys	Arg	Lys	His	Arg	Arg	Gly	Thr	Pro	Gln	Ser	Ser	Lys	Asp
	50					55					60				

His	Gln	Asn	Pro	Val	Pro	Lys	Gln	Pro	Leu	Pro	Thr	Thr	Arg	Gly	Asn
65					70				75						80

Pro Thr Gly Pro Lys Glu Ser Lys Lys Glu Val Glu Ser Lys Thr Glu
85 90 95

Thr Asp Pro Phe Asp
100

<210> 25
<211> 261
<212> DNA
<213> Human immunodeficiency virus

<220>
<221> CDS
<222> (1)..(261)

<400> 25
atg gac cca gta gat cct aac caa gag ccc tgg aac cat cca gga agt 48
Met Asp Pro Val Asp Pro Asn Gln Glu Pro Trp Asn His Pro Gly Ser
1 5 10 15
cag cct aaa act gct tgt aac aat tgt tat tgt aaa aag tgc tgc tat 96
Gln Pro Lys Thr Ala Cys Asn Asn Cys Tyr Cys Lys Lys Cys Cys Tyr
20 25 30
cat tgc caa ttg tgc ttt tta aag aaa ggc tta ggc att tcc tat ggc 144
His Cys Gln Leu Cys Phe Leu Lys Lys Gly Leu Gly Ile Ser Tyr Gly
35 40 45
agg aag aag cgg agc cag cga cga gga act cct gca agt ttg caa gat 192
Arg Lys Lys Arg Ser Gln Arg Arg Gly Thr Pro Ala Ser Leu Gln Asp
50 55 60
cat caa aat cct ata cca aag caa ccc tta tcc cga acc cgc ggg gac 240
His Gln Asn Pro Ile Pro Lys Gln Pro Leu Ser Arg Thr Arg Gly Asp
65 70 75 80
ccg aca ggc ccg aag gaa tag 261
Pro Thr Gly Pro Lys Glu
85

<210> 26
<211> 86
<212> PRT
<213> Human immunodeficiency virus

<400> 26
Met Asp Pro Val Asp Pro Asn Gln Glu Pro Trp Asn His Pro Gly Ser
1 5 10 15
Gln Pro Lys Thr Ala Cys Asn Asn Cys Tyr Cys Lys Lys Cys Cys Tyr
20 25 30

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His Cys Gln Leu Cys Phe Leu Lys Lys Gly Leu Gly Ile Ser Tyr Gly
 35 40 45

Arg Lys Lys Arg Ser Gln Arg Arg Gly Thr Pro Ala Ser Leu Gln Asp
 50 55 60

His Gln Asn Pro Ile Pro Lys Gln Pro Leu Ser Arg Thr Arg Gly Asp
 65 70 75 80

Pro Thr Gly Pro Lys Glu
 85

<210> 27
 <211> 306
 <212> DNA
 <213> Human immunodeficiency virus

<220>
 <221> CDS
 <222> (1)..(306)

<400> 27
 atg gag ctg gta gat cct aac cta gag ccc tgg aat cat ccg gga agt 48
 Met Glu Leu Val Asp Pro Asn Leu Glu Pro Trp Asn His Pro Gly Ser
 1 5 10 15
 cag cct aca act gct tgt agc aag tgt tac tgt aaa ata tgt tgc tgg 96
 Gln Pro Thr Thr Ala Cys Ser Lys Cys Tyr Cys Lys Ile Cys Cys Trp
 20 25 30
 cat tgc caa cta tgc ttt ctg aaa aaa ggc tta ggc atc tcc tat ggc 144
 His Cys Gln Leu Cys Phe Leu Lys Lys Gly Leu Gly Ile Ser Tyr Gly
 35 40 45
 agg aag aag cgg aag cac cga cga gga act cct cag agc agt aag gat 192
 Arg Lys Lys Arg Lys His Arg Arg Gly Thr Pro Gln Ser Ser Lys Asp
 50 55 60
 cat caa aat cct ata cca gag caa ccc cta ccc atc atc aga ggg aac 240
 His Gln Asn Pro Ile Pro Glu Gln Pro Leu Pro Ile Ile Arg Gly Asn
 65 70 75 80
 ccg aca gac ccg aaa gaa tcg aag aag gag gtg gcg agc aag gca gag 288
 Pro Thr Asp Pro Lys Glu Ser Lys Lys Glu Val Ala Ser Lys Ala Glu
 85 90 95
 aca gat ccg tgc gat tag 306
 Thr Asp Pro Cys Asp
 100

<210> 28
 <211> 101
 <212> PRT
 <213> Human immunodeficiency virus

<400> 28

Met Glu Leu Val Asp Pro Asn Leu Glu Pro Trp Asn His Pro Gly Ser
 1 5 10 15

Gln Pro Thr Thr Ala Cys Ser Lys Cys Tyr Cys Lys Ile Cys Cys Trp
 20 25 30

His Cys Gln Leu Cys Phe Leu Lys Lys Gly Leu Gly Ile Ser Tyr Gly
 35 40 45

Arg Lys Lys Arg Lys His Arg Arg Gly Thr Pro Gln Ser Ser Lys Asp
 50 55 60

His Gln Asn Pro Ile Pro Glu Gln Pro Leu Pro Ile Ile Arg Gly Asn
 65 70 75 80

Pro Thr Asp Pro Lys Glu Ser Lys Lys Glu Val Ala Ser Lys Ala Glu
 85 90 95

Thr Asp Pro Cys Asp
 100

<210> 29

<211> 306

<212> DNA

<213> Human immunodeficiency virus

<220>

<221> CDS

<222> (1)..(306)

<400> 29

atg gag ccg gta gat cct agc cta gag ccc tgg aac cac ccg gga agt 48
 Met Glu Pro Val Asp Pro Ser Leu Glu Pro Trp Asn His Pro Gly Ser
 1 5 10 15

cag cct aca act gct tgt agc aat tgt tac tgt aaa atg tgc tgc tgg 96
 Gln Pro Thr Thr Ala Cys Ser Asn Cys Tyr Cys Lys Met Cys Cys Trp
 20 25 30

cat tgc caa ttg tgc ttt ctg aac aag ggc tta ggc atc tcc tat ggc 144
 His Cys Gln Leu Cys Phe Leu Asn Lys Gly Leu Gly Ile Ser Tyr Gly
 35 40 45

agg aag aag cgg aga cgc cga cga gga act cct cag agc cgt cag gat 192
 Arg Lys Lys Arg Arg Arg Arg Arg Gly Thr Pro Gln Ser Arg Gln Asp
 50 55 60

cat caa aat cct gta cca aag caa ccc tta ccc acc acc aga ggg aac 240
 His Gln Asn Pro Val Pro Lys Gln Pro Leu Pro Thr Thr Arg Gly Asn
 65 70 75 80

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ccg aca ggc ccg aaa gaa tcg aag aag gag gtg gcg agc aag aca gag 288
Pro Thr Gly Pro Lys Glu Ser Lys Lys Glu Val Ala Ser Lys Thr Glu
85 90 95

aca gat ccg tgc gat tag 306
Thr Asp Pro Cys Asp
100

<210> 30

<211> 101

<212> PRT

<213> Human immunodeficiency virus

<400> 30

Met Glu Pro Val Asp Pro Ser Leu Glu Pro Trp Asn His Pro Gly Ser
1 5 10 15

Gln Pro Thr Thr Ala Cys Ser Asn Cys Tyr Cys Lys Met Cys Cys Trp
20 25 30

His Cys Gln Leu Cys Phe Leu Asn Lys Gly Leu Gly Ile Ser Tyr Gly
35 40 45

Arg Lys Lys Arg Arg Arg Arg Arg Gly Thr Pro Gln Ser Arg Gln Asp
50 55 60

His Gln Asn Pro Val Pro Lys Gln Pro Leu Pro Thr Thr Arg Gly Asn
65 70 75 80

Pro Thr Gly Pro Lys Glu Ser Lys Lys Glu Val Ala Ser Lys Thr Glu
85 90 95

Thr Asp Pro Cys Asp
100

<210> 31

<211> 348

<212> DNA

<213> Human immunodeficiency virus

<220>

<221> CDS

<222> (1) . . (348)

<400> 31

atg gat cca gta gat cct gag atg ccc cct tgg cat cac cct gga agt 48
Met Asp Pro Val Asp Pro Glu Met Pro Pro Trp His His Pro Gly Ser
1 5 10 15

cag ccc cag acc cct tgt aat aag tgc tat tgc aaa aga tgc tgc tat 96
Gln Pro Gln Thr Pro Cys Asn Lys Cys Tyr Cys Lys Arg Cys Cys Tyr

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20	25	30	
cat tgc tat gtt tgt ttt gca agc aag ggt ttg gga atc tcc tat ggc			144
His Cys Tyr Val Cys Phe Ala Ser Lys Gly Leu Gly Ile Ser Tyr Gly			
35	40	45	
agg aag aag cga cgg aga cca gcc gct gct gcg agc cat cca gat aat			192
Arg Lys Lys Arg Arg Arg Pro Ala Ala Ala Ser His Pro Asp Asn			
50	55	60	
caa gat cct gta cca gag caa ccc cca tcc atc acc aac agg aag cag			240
Gln Asp Pro Val Pro Glu Gln Pro Pro Ser Ile Thr Asn Arg Lys Gln			
65	70	75	80
aaa cgc cag gag gaa cag gag aag gag gtg gag aag gag aca ggc cca			288
Lys Arg Gln Glu Glu Gln Glu Lys Glu Val Glu Lys Glu Thr Gly Pro			
85	90	95	
ggt gga tac cct cgc cgc aag gat tct tgc cac tgt tgt aca cgg acc			336
Gly Gly Tyr Pro Arg Arg Lys Asp Ser Cys His Cys Cys Thr Arg Thr			
100	105	110	
tca gga caa taa			348
Ser Gly Gln			
115			
<210> 32			
<211> 115			
<212> PRT			
<213> Human immunodeficiency virus			
<400> 32			
Met Asp Pro Val Asp Pro Glu Met Pro Pro Trp His His Pro Gly Ser			
1	5	10	15
Gln Pro Gln Thr Pro Cys Asn Lys Cys Tyr Cys Lys Arg Cys Cys Tyr			
20	25	30	
His Cys Tyr Val Cys Phe Ala Ser Lys Gly Leu Gly Ile Ser Tyr Gly			
35	40	45	
Arg Lys Lys Arg Arg Arg Pro Ala Ala Ala Ala Ser His Pro Asp Asn			
50	55	60	
Gln Asp Pro Val Pro Glu Gln Pro Pro Ser Ile Thr Asn Arg Lys Gln			
65	70	75	80
Lys Arg Gln Glu Glu Gln Glu Lys Glu Val Glu Lys Glu Thr Gly Pro			
85	90	95	
Gly Gly Tyr Pro Arg Arg Lys Asp Ser Cys His Cys Cys Thr Arg Thr			
100	105	110	

Ser Gly Gln
115

<210> 33
<211> 20
<212> PRT
<213> Human immunodeficiency virus

<400> 33

Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser
1 5 10 15

Gln Pro Lys Thr
20

<210> 34
<211> 20
<212> PRT
<213> Human immunodeficiency virus

<400> 34

Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe His Cys Gln Val
1 5 10 15

Cys Phe Ile Thr
20

<210> 35
<211> 15
<212> PRT
<213> Human immunodeficiency virus

<400> 35

Val Cys Phe Ile Thr Lys Ala Leu Gly Ile Ser Tyr Gly Arg Lys
1 5 10 15

<210> 36
<211> 15
<212> PRT
<213> Human immunodeficiency virus

<400> 36

Ser Tyr Gly Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln
1 5 10 15

<210> 37
<211> 15
<212> PRT
<213> Human immunodeficiency virus

<400> 37

Arg Arg Pro Pro Gln Gly Ser Gln Thr His Gln Val Ser Leu Ser
1 5 10 15

<210> 38

<211> 21

<212> PRT

<213> Human immunodeficiency virus

<400> 38

Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser Gln Thr His Gln Val
1 5 10 15

Ser Leu Ser Lys Gln
20

<210> 39

<211> 16

<212> PRT

<213> Human immunodeficiency virus

<400> 39

His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Arg Gly Asp
1 5 10 15

<210> 40

<211> 14

<212> PRT

<213> Human immunodeficiency virus

<400> 40

Pro Thr Ser Gln Ser Arg Gly Asp Pro Thr Gly Pro Lys Glu
1 5 10